

PTO 05-955

German Patent No. 198 44 644 A1
(Offenlegungsschrift)

SLIDE-IN CASSETTE UNIT

Wilhelm Neukam

UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. DECEMBER 2004
TRANSLATED BY THE RALPH MCELROY TRANSLATION COMPANY

FEDERAL REPUBLIC OF GERMANY
GERMAN PATENT AND TRADEMARK OFFICE
PATENT NO. 198 44 644 A1
(Offenlegungsschrift)

Int. Cl.⁷: H 05 K 7/14
H 05 K 7/20

Filing No.: 198 44 644.6

Filing Date: September 29, 1998

Date Laid-open to Public Inspection: April 20, 2000

SLIDE-IN CASSETTE UNIT

[Kassetteneinschub]

Inventor: Wilhelm Neukam

Applicant: Siemens Nixdorf
Informationssysteme AG

References Cited: DE 29 28 668 C2
DE 44 22 244 A1
DE 30 38 719 A1
Rittal: Handbook 29, pp. 520-525,
317-321, published in DPA on
October 14, 1997

The following information has been taken [unedited] from documents submitted by the applicant

Examination request according to §44 Patent Act has been filed

The invention relates to a slide-in cassette unit according to the preamble of Claim 1.

In electrical devices, fans are frequently installed for cooling purposes. Their placement can be anywhere within the device. Servicing or exchanging fan components is therefore involved and difficult. In no case is it possible to exchange fans when an electrical device is running, i.e., there is no hot-plug function.

The task of the invention is to present means enabling the servicing or exchanging of fan components to be performed in an efficient way and with a hot-plug function.

This task is achieved by a slide-in cassette unit of the type mentioned in the introduction, which has the characterizing features of Claim 1.

Accordingly, the slide-in cassette unit is designed as a fan cassette. Fans, which are to be serviced or exchanged, can be separated from the slide-in cassette unit carrier or attached to the slide-in cassette carrier in the simplest way by pulling them out or pushing them into a slide-in cassette unit carrier. In particular, these slide-in cassette units can be inserted or removed while running, if the electrical function of the device permits this in principle. Thus, there is a hot-plug function. With the slide-in cassette unit is designed as a fan cassette, it is further possible to provide multiple and other redundant fan components, because handling is not made more difficult by the number of slide-in cassette units. Access to an individual slide-in cassette unit is always directly and immediately possible. A cover by a flap or the like is not necessary. The fan or fans sit protected in a housing within the slide-in cassette unit.

Advantageous configurations of the invention are the object of subordinate claims.

Accordingly, the electrical contact means between the slide-in cassette unit and the slide-in cassette unit carrier are float-mounted contact plugs. This has the advantage when the slide-in cassette unit is pushed into the slide-in cassette unit carrier that tolerances can be compensated for and nevertheless a secure contact can be guaranteed. In addition, no additional circuit boards are necessary.

At least one optical waveguide strand provided in the slide-in cassette unit and arranged accordingly enables it to transport optical signals coming from a component of the slide-in cassette unit carrier to the front surface of the slide-in cassette unit, so that, e.g., an optical display whether a fan is defective or in working order can be made visible immediately in this way.

An inlet creating an EMV [electromagnetic compatibility] shield can be attached in the slide-in cassette unit, if this is necessary.

In the following, the invention is shown in more detail with reference to a drawing. Shown are:

Figure 1, a slide-in cassette unit carrier with a slide-in cassette unit according to the invention,

Figure 2, a slide-in cassette unit according to Figure 1 during a pull-out or plug-in process,

Figure 3, a slide-in cassette unit according to Figure 1 in front view, and

Figure 4, a slide-in cassette unit according to Figure 1 in rear view.

Figure 1 shows a slide-in cassette unit carrier KET, in which several slide-in cassette units KE are installed. One of the slide-in cassette units KE is shown in the half plugged-in position. Each of the slide-in cassette units KE has a fan L (Figure 4).

In Figure 2, a circuit board P, which electrically holds several slide-in cassette units KE, is shown in a more detailed representation in comparison with Figure 1. For an electrical connection between a slide-in cassette unit KE and the slide-in cassette unit carrier KET, contact plugs KS are provided, which enable direct plugging. So that tolerances are compensated for during plug-in, the contact plugs KS are float-mounted. Electronics within the slide-in cassette unit carrier KET, which can be arranged, e.g., on the circuit board P, determines whether a fan within a slide-in cassette unit KE is in working order or not. The result of this determination is displayed in the present embodiment by an optical signal, which is output via an optical display LED.

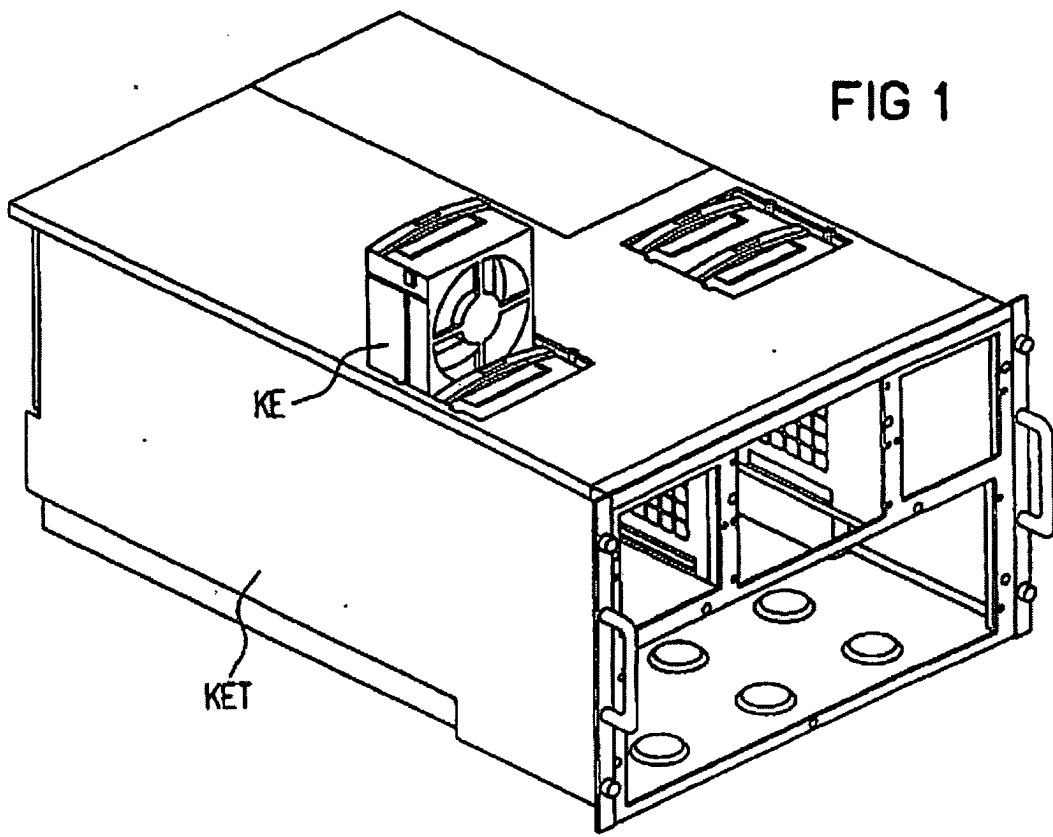
As can be seen in Figure 3, an optical waveguide strand LWS, which forwards the optical signal to the front surface FF (Figure 4), is arranged in the slide-in cassette unit KE. The connection between fans L and contact plugs KS is realized via cable K.

Figures 3 and 4 also show a lever mechanism VM for pulling-out and locking.

Claims

1. Slide-in cassette unit with means for electrical contact between a slide-in cassette unit carrier and the slide-in cassette unit in a state pushed into the slide-in cassette unit and with means for mechanical locking and unlocking when the slide-in cassette unit is pushed in or pulled out of the slide-in cassette unit carrier, characterized in that the slide-in cassette unit (KE) is designed as a fan cassette.
2. Slide-in cassette unit according to Claim 1, characterized in that the electrical contact means are float-mounted contact plugs (KS).
3. Slide-in cassette unit according to one of the preceding claims, characterized in that at least one optical waveguide strand (LWS) is provided, which transports an optical signal coming from a component (K) of the slide-in cassette unit carrier (KET) to the front surface (FF) of the slide-in cassette unit (KE).
4. Slide-in cassette unit according to one of the preceding claims, characterized in that an inlet creating an EMV shield is attached in the slide-in cassette unit (KE).

FIG 1



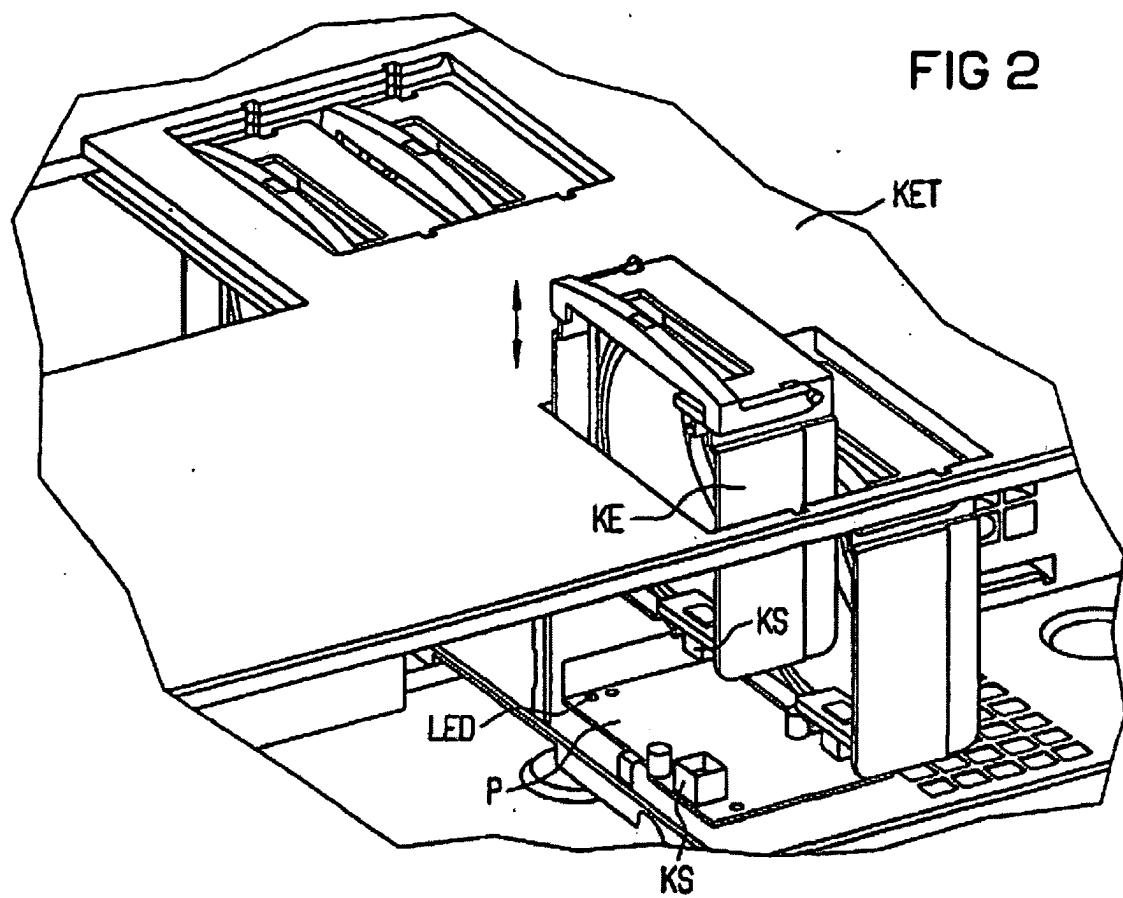


FIG 3

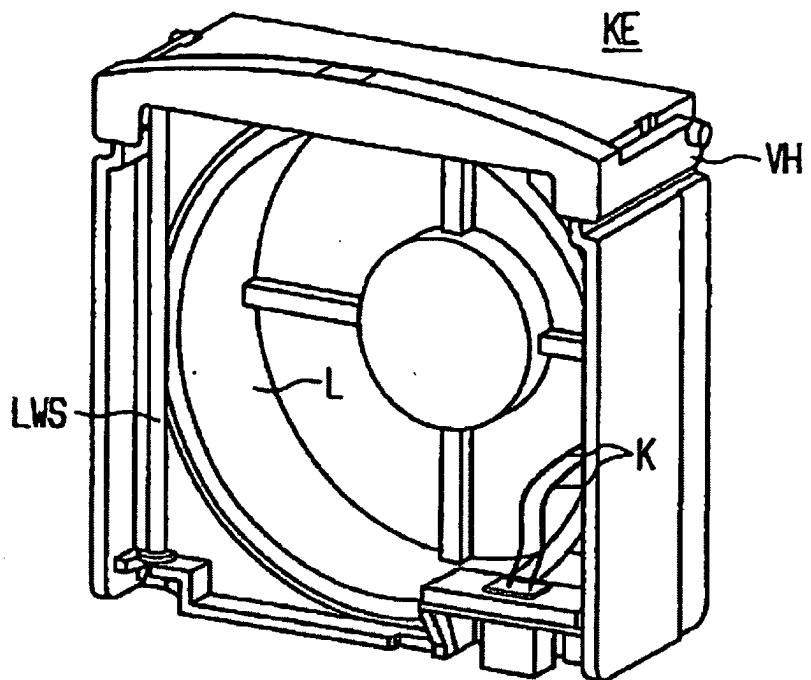


FIG 4

